Supplementary Information for

Dimers in α-pinene secondary organic aerosol: Effect of hydroxyl radical, ozone, relative humidity and aerosol acidity

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Table 1S. Calculated hourly loss rate (%) in the two chambers during Exp. 2, 3 and 10. Sulfur hexafluoride (SF_6) was injected as an inert tracer into each side of the chamber (Chamber A and Chamber B) and its concentration was monitored chromatographically with an electron capture detector throughout the experiments to determine the rate of dilution. No dilution tracer was monitored after Exp. 10.

Experiment	RH (%)		Temp (°C)		Hourly loss rate (%)	
	Chamber A	Chamber B	Chamber A	Chamber B	Chamber A	Chamber B
Exp. 2	14	27	28	28	3.60	5.01
Exp. 3	15	46	26	26	2.48	3.87
Exp. 10	21	56	28	28	3.76	3.73

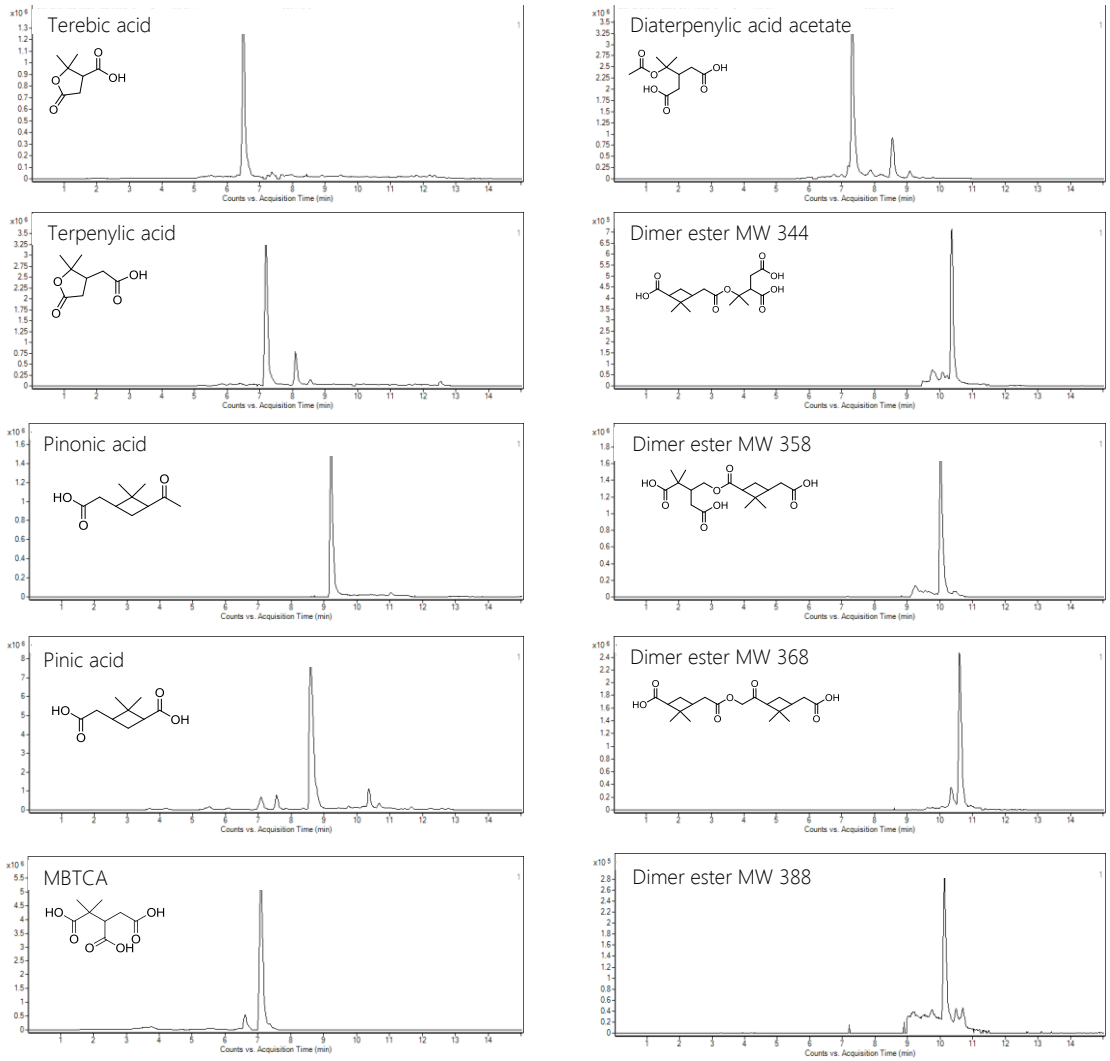

Figure 1S. UPLC-MS extracted ion chromatograms of identified compounds.

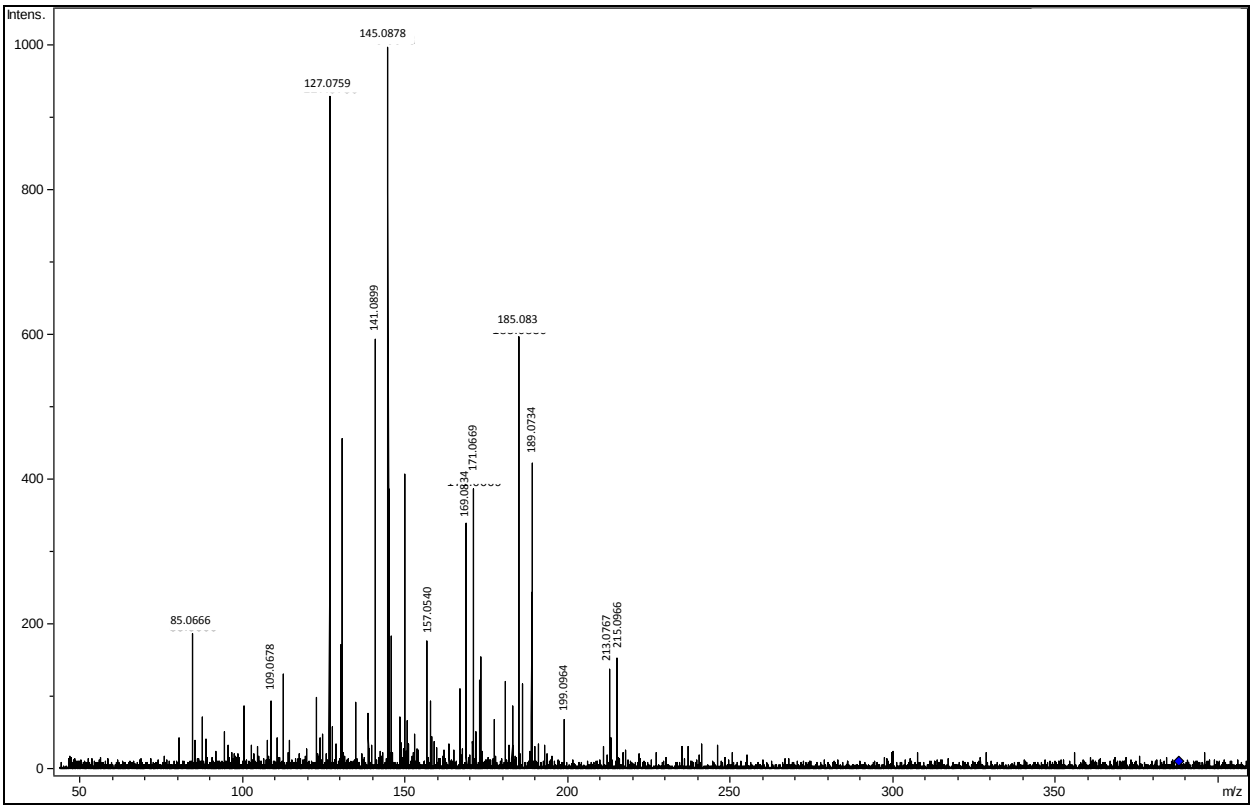

Figure 2S. MS/MS spectrum of 387 m/z(-) dimer from α-pinene SOA by collision-induced dissociation.

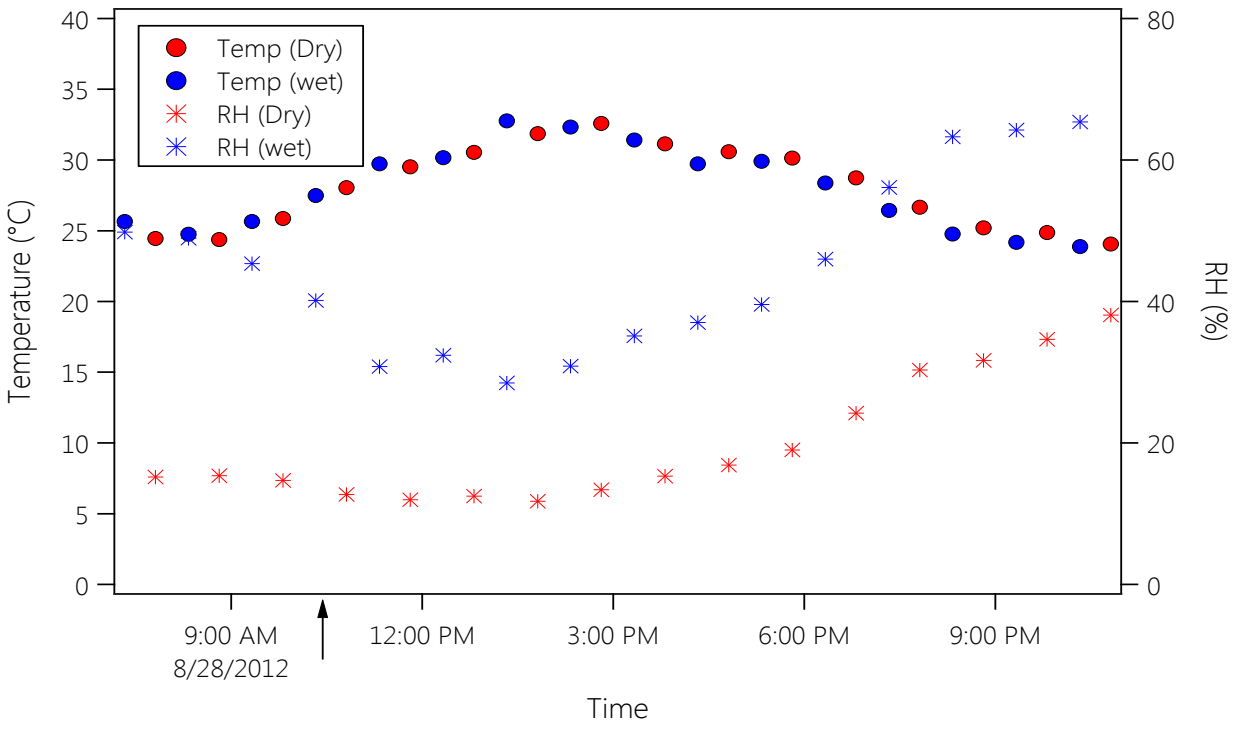

Figure 3S. Temperature (°C) and RH (%) in the low (Dry) and high (Wet) RH chamber during OH-oxidation of α-pinene (Exp. 3). Injection of α-pinene is indicated by arrow.

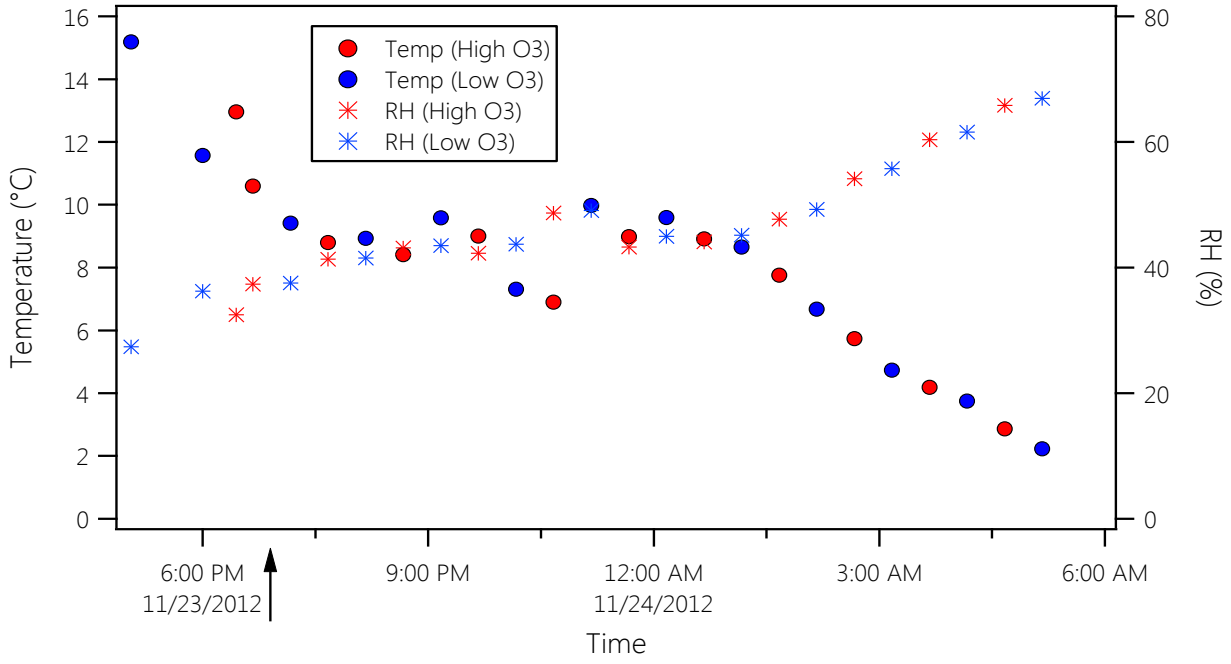

Figure 4S. Temperature (°C) and RH (%) in the low (80ppb, blue) and high (170ppb, red) ozone chamber (Exp. 4).) Injection of α-pinene is indicated by arrow.

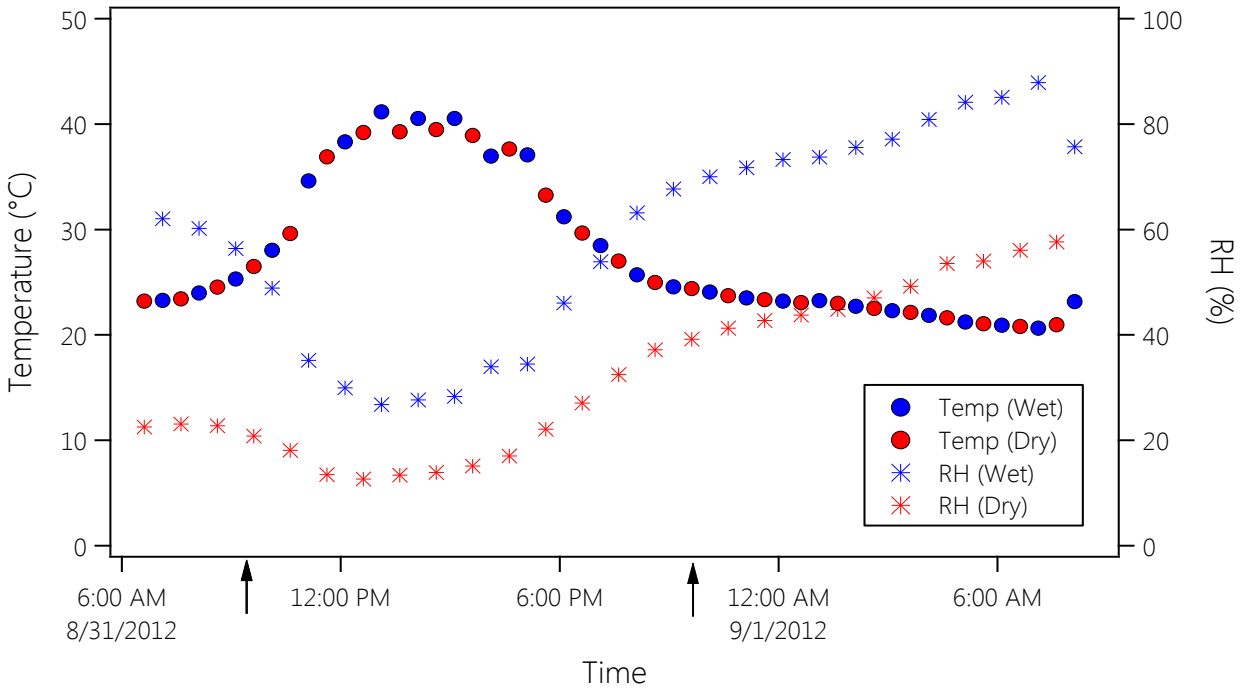

Figure 5S. Temperature (°C) and RH (%) in the low (Dry) and high (Wet) RH chamber during initial OH oxidation of α-pinene followed by oxidation of a second injection of α-pinene by O_3 generated during initial oxidation (Exp. 10). First (100ppb) and second (50ppb) injection of α-pinene are indicated by arrows.

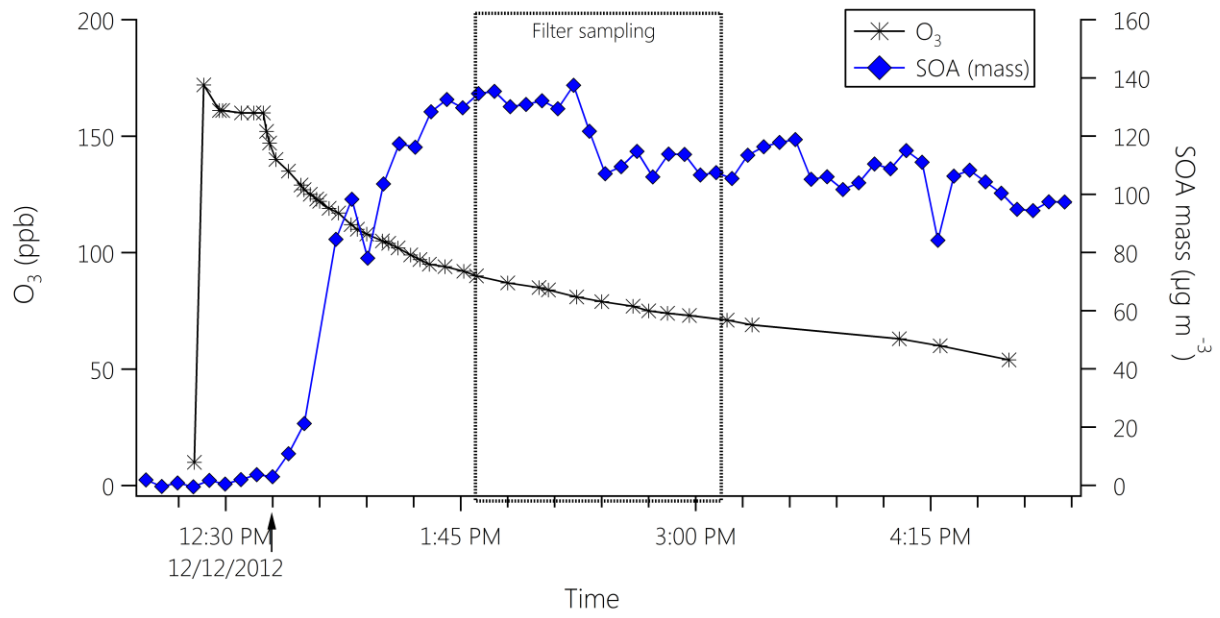

Figure 6S. Concentration of O_3 (ppb) and SOA mass (µg m^{-3}) in the indoor α-pinene ozonolysis experiment (Exp. 7).